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The Saga of Diagnosing the Entry Behaviors of Ghanaian First Graders

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In Ghana, on average, a child enters the first year of the primary school at the age of six because few manage to go to first grade at the age of five. About 30% of these children would have had access to kindergarten or nursery education for at least one year (Ministry of Education, 1995). There are some children who before entering first grade, would have had early education on a continuum from one to three years. Yet, the majority of children will enter the first year in the primary school with no prior exposure to early education. Therefore, they encounter large amounts of obstacles in their classrooms such as holding a piece of chalk or a pencil. The purpose of the study is to investigate the hardships of first graders, which stem from fundamental weaknesses of Ghanaian education, and how their challenges reflect upon the entry behaviors of the students. The crux of the matter is that to develop leaders for tomorrow we need to pay attention to the students of today. According to a report from the Centre for Research into Quality Primary Education in Ghana (CRIQPEG), the country had one of the most developed educational systems in Africa but, as a result of political instability and economic mismanagement educational facilities, have deteriorated had and achievement levels fallen abysmally (CRIQPEG, 1993).

Crystallization of the Problem

The majority of primary six students are functionally illiterate in English and unable to solve basic mathematical problems. Obviously, without these fundamental skills, students will not gain comprehension and skills in other subjects. Accordingly, they will also not be prepared for the world of work. The Minister of Education in the mid- 1990s even argued that one could not justify continuing expenditure on expanding a system that does not lead to learning. He was of the opinion that reaching a target of universal participation in primary schooling was not a sensible goal unless that participation led to learning and skill (Ministry of Education, 1995).

The Ghanaian educational system is saddled with fundamental weaknesses ranging from inadequacies in initial teacher training, professional field support, methodology, teaching/learning materials, and rigid curriculum. In addition, it operates a problem-ridden instructional language policy and has overcrowded classrooms with overloaded (and not too highly motivated) classroom teachers who work to pre-planned and pre-determined forecasts. Therefore, the system is consequently experiencing high levels of school failure and dropouts (Godwyll, 2003). A sizeable percentage of school failure and dropout or “pushouts” result from hidden difficulties, weaknesses, or handicaps that students may have or that emanate from the instructional process. However, obviously neither the school system nor the instructional programs are designed to detect and or ameliorate these obstacles, as also upheld by Thorburn and Marfo (1986).

Focus and Questions of the Study

A large proportion of studies on primary schools in Ghana have tended to concentrate on higher level classes. The end-of -cycle examinations only inform educators about the extent to which the system did or did not work. For example, the United States Agency for International Development (USAID) had

funded since 1993 a nationwide Criterion-Referenced Test that assesses about 5% of the population of six graders. According to a USAID report of February 2001, funds had been made available to the Ministry of Education in Ghana to support this program until 2002 (Ministry of Education, 2002). Thus, efforts are made to secure funds well in advance to ensure that these tests conducted at the end of the school cycle are not disrupted. This example shows the preoccupation of the school system in Ghana in expending effort and money on what the author will term "postmortem analyses." Unfortunately, these postmortem analyses more often than not only indicate the irrevocable catastrophe and failure of the system– but do not lead to prevention. As much as they may provide invaluable information on pupil performance and may lead to long- and short- term remedial steps, what happens to the lives of those "Guinea pigs" whose conditions may be irreparable? No one should have to wait until when a child has completed six or more years of school to find out that the child cannot read or compute. This study focuses on answering the following research questions:

1) What kind of entry behaviors do Ghanaian first graders show once they enter school?

2) What significant differences exist among students with respect to the following independent variables: gender, locality, language usage, pre-school experience, age, and private verses public schools?

3) How varied are the entry behaviors of Ghanaian first graders?

Methods

Sample/Sampling

This study adopted purposive and simple random sampling techniques in selecting the schools and the students in the Central Region of Ghana. Four districts in the Central Region of Ghana were purposively selected: namely, Cape Coast, Winneba, Swedru, and Komenda-Edina-Eguafo-Abrem because of their proximity and accessibility. The list of schools in these districts was obtained from their respective education offices. With the help of the District Officers, the schools were categorized into four localities: urban, semi-urban, rural, and semi-rural. In each district, two schools were selected from each of the localities using the lottery method. An additional school was purposefully added in case some unforeseen circumstances prevented the researchers from obtaining the requisite data from a school. Thus, a total of 17 schools from five districts were obtained. Working together with the teachers, a list of students based on their perceived abilities as assessed by the teachers was prepared for each of the 17 first grade classrooms. The students selected were categorized into three groups: average, above average and below average.

The researcher and the field assistants cross-checked the performance levels from their exercise books, test results, and other cumulative records or from their previous teachers in kindergarten and nurseries, where available. Four students from each of the three ability groups were randomly selected; thus, there were 12 students in each of the 17 schools totaling 204. Though the target sample was 204, the data producing sample was 158.

Instrument

A pre-diagnostic instrument put together by the researcher was adopted as the main tool for assessing

the entry prerequisites of Ghanaian first graders. More specifically, the aim was to identify the entry behaviors of Ghanaian first graders and to show the extent of the inter-individual differences regarding their prerequisites. The instrument covered drawing, mathematics, English language abilities, and functional items. It consisted of 293 items based on the Ghanaian school curriculum. This instrument was designed for six-year-olds or entrants into first grade in Ghanaian primary schools.

The determination of these prerequisites was based on a thorough assessment of the terminal competencies of the kindergarten curriculum and the beginning objectives of the first grade curriculum. It therefore covered selected pre-school- related abilities that are critical for beginning school in a Ghanaian primary school. The items were constructed in simple language, thus making the instrument user-friendly. The instrument also consisted of activities that engaged the students to ensure sustained interest and attention. Thus, for easy administration of the instrument and to elicit the best possible responses from the child, it was divided into four parts. Each child was to be taken through one part at a time, which was estimated to last about 30 minutes each. The instrument was first face validated by a team of three early childhood experts. It was then subjected to test-retest reliability with 5 second-year kindergarten students. The reliability coefficient was 0.8.

Procedure

At the start of the data collection stage, it was critical to bring all the 10 field assistants at par so a training session was organized through a pre-field visit using 10 Ghanaian first graders. The objectives and procedures for data collection and recordings were all tried. During the data collection phase, the researchers arrived at the schools and prepared their rooms with adequate tables and chairs. The teachers then called out children based on the sample list already prepared. After going through one part with one child, the student was released and as soon as he or she reported to class, the teachers called out the next child to be interviewed. At the end of each day, a review of the day's activities was carried out to iron out inconsistencies.

Analyses of Data

In response to the first research question on what entry behaviors Ghanaian first graders possess, the data were compressed into 15 skill areas to describe the variance to item difficulty using (p= NR/R) where NR is the number of students who got the item right and N is the number of respondents. Therefore, it is the number of students who got the item right divided by the total number of students or respondents. Thus, if, for example, 80% of test takers identified the correct option to Item 1, we would say item 1′s difficulty was 0.80. In answering the second question on the significant differences among the six independent variables chi² – tests were used. The last question was answered using descriptive cases indicative of variance.

Background Data of Sample

One hundred and fifty-eight first graders were sampled from 17 schools. Nine schools were from urban centers and eight from rural areas with 51.3% and 48.7% of the sample respectively. Though gender was not a criterion for selection, there were 52.5% males and 47.5% females in the sample. The distribution in the ability groupings were 32.3%, 33.5%, and 34.2% in the below average, average, and above average groupings, respectively. The age range was between six to ten years but the mode was between six and seven, which represented 60.8% with 63.9% having had early education in a nursery

or kindergarten. About 29.7% used less than one hour to complete the diagnostic instrument, 57% used between two to three hours, and 13.3% completed the instrument between three to four and half hours.

Variance to Item Difficulty

Under this subheading using the formula (p = NR / N), the item difficulty was calculated. It is categorized under three sub-divisions: high-level difficulty, medium-level difficulty, and low- level difficulty.

Skill Areas with High-Level Difficulty

Picture interpretation had (p = 0.43). This skill area involved interpreting five pictures that showed the stages of life from birth to death, and the students were to tell what kind of activity was occurring in each picture**.** With pre-reading skills, the interviewer was to hold the book in such a way that the student could see the cover page and the back at the same time and ask the respondents questions on fundamental ideas on pre-reading skills, including identifying page, lesson or chapter, and left-right eye movement in relation to reading. This sub-skill is denoted with a range, which means that the ability of the students to identify the different tasks associated with the major skill differed from only 30% of the respondents getting them right to 87%. The areas of ease were more with identifying key words such as play, Kofi, and Football, identifying the front of the book from the back, showing that reading in English moves from the left side of the page to the right. But they had more difficulty with identifying lower and upper cases when they were mixed. They were not able to follow when an individual read pointing his/her finger at the words and did not understand that words were to be written with spaces between them.

In this skill area of English language stand/ability, the student was supposed to exhibit his or her grasp over the English language. Thus, it was expected that the interaction would be carried out in English. Two puppets were used: one for the student and the other for the interviewer. The puppets were to be manipulated as if they were the ones speaking. The interviewer was to show the child how to use it before the main tasks began. For example, the interviewer was told to “say to the student I have here something for you to play with. I want us to play together with the puppets, so take one and I will show you how we are going to play together.” The student was to be corrected when he/she made a mistake. Interviewers were to observe whether the child learned to correct himself with time.

In the story reconstructions, only between 27%-29% were able to reconstruct 100% of the story whereas 0.30-0.57 reconstructed between 25% and 50%. This skill area had three different sets of stories in pictures: a) the Ladder, b) the Balloon, and c) the Cake. The following procedure was adopted for each of the sets of stories. First the students were allowed to choose the language they could best express themselves. Then the pictures were placed before the children one after the other and in each case, they were to say what they saw or thought was happening. The students were also to arrange the pictures in an order that made sense in terms of a logical flow and sequence. Finally, they were to retell the story as they understood it.

The last skill under the high-level difficulty category was identification and sorting of basic colors. Only 40% were able to perform it. In this activity, objects or cards with different colors were placed before the child who was asked to sort and identify the various colors.

Skill Areas with Medium-Level Difficulty

The medium-level skill areas all recorded a range on the item of difficulty since they all had series of different activities. What this means is that whereas some sub-skills were relatively difficult, others were not. The ability to draw dealt with students' representation of images in graphical forms. In other words, can the child draw? If so what abilities are evident in his or her drawing that are critical for developing the ability to write? The number concept skill area involved a dice game, which the interviewer played with the child. The play pieces were in two different colors, and the interviewer asked the students to select the color they liked and the interviewer chose the other. They took turns to throw the dice and count with the play pieces.

With the concept about time, the student told the interviewer how he or she spent the day, stating the time element, such as. "I wake up at 6 o'clock." Also pictures showing examples of activities on how a typical day was spent were placed before the child who was asked to arrange them in the order in which they occurred. There were variations to accommodate children who encountered difficulties with the original task. Here students were also supposed to show their knowledge of dates, time, months, weeks, and days.

The activities to assess experience with money took the form of the child being given some local currency in coins, such as. C100 and c10 and c 50 and being asked to compare which is more or how many of one would make the value of one. The skill areas of basic addition, subtraction, and simple proportion had two tasks. In the first task a game of "hide and seek" was played. Here, for example, the interviewer hid pebbles in his palms and students sought to find how many one had in a palm at any time. First the student was shown the number of coins or pebbles the interviewer had altogether, and then some were hidden in one palm and the other palm shown to the student. The student was supposed to indicate how many there were in the closed palm. For example, the interviewer showed the child 3 coins or pebbles, hid 2 in the closed palm and showed 1 in the other palm. The student was expected to indicate the number of pebbles in the closed palm. There were many variations in this game using up to 10 pebbles.

The second task involved placing before the student pictures of pairs of footwear, such as 1 pair, 3 pairs, and 6 pairs one after the other. The child was to assume that his or her friends had come to visit him or her at home and had removed their footwear and placed them before the entrance. The child was to tell how many children would be visiting in each case, based on the pictures shown. The other variation in this task on simple proportion placed before the child pictures of human feet that protruded from under a bed sheet or blanket one after the other, and the student was to determine how many children were lying under the bed sheet or blanket in each case.

These skill areas involving comparisons were grouped under two broad headings: weight and duration as the first category and comparison with length, mass and speed as the next. Here simple practical everyday events and activities as well as objects were used in the various areas to identify the student's abilities and experiences in these skill areas. In the skill area of sorting and identification of numerals, and letters of the alphabet and colors, two activities were put together. In the first activity, cards with numerals, letters of the alphabet, punctuation marks, geometric figures, and other symbols were given to the student who was given systematic instructions on how to sort them out. Apart from the activities involving sorting out and identifying colors that had a high level of difficulty, as already indicated above, all the other registered a medium level of difficulty.

Skill Areas with Low-Level Difficulty

Functional items covered areas such as greetings, giving their names, birthdays, names of siblings, pets, schools, parents, the occupations of their parents/guardians, number of siblings, and the games they liked best. This also covered feelings about school, their teachers' names, and in which classes they were. The type of accommodation they lived in and television and radio programs they listened to were also covered.

With the concept of symbols, it yielded a range of (p = 0.64-0.90). The students were provided with a sheet of paper to write their names. They were then asked to draw some symbols i.e. a line from the top of the sheet to the bottom, a circle, a cross, a triangle, a square, and two dots. There were six other variations of this task: naming the symbols, drawing the symbols abstractly in the air, asking the students to draw after you, copying the symbols after they have been drawn by the interviewer, tracing the symbols**,** sorting out the different shapes and symbols, or fixing up the various parts of the symbols in a puzzle task. In this task, each variation is envisioned to be easier than the previous one; thus, only when a child was not able to perform the proceeding task that he or she was moved on to simpler tasks. According to Kornmann (1981), these variations are only necessary when the child fails to accomplish the original task. The rationale for the exercise was to establish the fore-knowledge of students on the relationship between symbols and their meanings, identification of appropriate word meanings, ability to differentiate auditory, ability to visually differentiate, and ability to draw. In picture identification the child was given a sheet of paper with 14 pictures. The task involved mentioning the names either in the local language or in English as the interviewer pointed to each one of them.

Analyses of Chi-Square Results

In the last part of the analyses, the interactions and dependencies of the six independent variables i.e. gender, locality, language usage, pre-school experience, age, and private verses public schools on the performance of 24 strong students and the 36 weak ones were calculated using the chi² test.

Since the data did not show any significant difference in gender, it cannot be the basis for differential treatment or access to educational provision. Though there is no identifiable policy or law that explicitly discriminates against the girl child, classroom research reveals certain covert behaviors of teachers and male students that can inhibit the learning of girl (see Ministry of Education, 1995; Godwyll & Essiaw, 1997). Generally, many of traditional viewpoints outside the classroom also militate against the well-being of the girl child in school. The lack of significance in the learning prerequisites between the genders is very critical for the body politic. It emphasizes the point that the girl child has the potential and the basic learning prerequisites for successful schooling and must not be inhibited in anyway. The clarion call is for parents, guardians, significant others and the entire society to remove all stumbling blocks to learning that are put in the way of girls.

The test of significance among localities yielded a Chi² value of 14.86, which meant that there was a significant difference among the localities. The schools in the various localities indeed differ in their practices, ranging from those who pre-tested students and therefore selected only those demonstrating most of the learning prerequisites for beginning school; to competencies of teachers and supervision and control of the learning time of the students; to methodology, infrastructure, learning, and teaching materials among others-and all these favor the urban areas. It is therefore not surprising that

differences exist among the localities in performance. Nevertheless, the critical point here is that the majority of the children who are weak in some areas of study were from rural settings, which show them to be disadvantaged through no fault of their own. It is therefore unjustified to force a child from a rural area, whose first encounter with paper and pencil may be in the first grade classroom, to move at the same pace with his or her counterpart from an urban setting. The child in the rural setting should have an equal chance or access to high-quality education as his counterpart in the urban area. For this to be feasible there is the need for a differentiated approach to educational delivery in the rural areas.

The results on language usage yielded a significant difference with a Chi² value of 34.26. Though the interviews were conducted in the local language of the children, except when the items were used for establishing the English Language ability of the child, the field study shows that children with strong English language facility performed better. All the 24 strong students used between 80% and 100% of English language to complete the instrument. A ministry report noted “Ghanaian children, particularly in the rural areas, have only 1% of the contact hours that a child growing up in England or the United States might have” (Ministry of Education, 1995: 24). They further argue that language is the fundamental skill needing to be developed and that the difficulties faced by Ghanaian children in learning to read and write in the native languages and in English is the fundamental problem facing the educational system today. Ghanaian children fail to reach the cognitive threshold necessary for successful transfer to English by fourth grade (Godwyll, 2002; Godwyll, 2008; Ministry of Education, 1995).

A high significant level of 19.33 Chi² value shows that pre-school education plays a major role in the preparation of the children for school. This may explain the increased interest in early childhood education among the populace lately. Despite this increased interest, the management of this sector of education lies predominantly in the hands of the private sector. Some private individuals taking advantage of this increased awareness of the need for pre-school education charge very high fees: in some cases, between $200 and $250, which is far more than the monthly salary of the average middle-class worker, such as university Professors. It was therefore a welcome relief that in April 2007 the government launched a Reform in Education that purports to make two years of kindergarten education part of the Basic Education requirement, thus effectively extending the compulsory education requirement from nine years to eleven.

The Chi² value of 11.20 on age shows that it is a critical factor in the performance of the children. The study also shows that children with younger ages had higher learning prerequisites than those with older ages. It echoes the viewpoints already discussed. The results of the sample from private and public schools yielded a significant difference at a high Chi² value of 11.11.

In Ghana the private basic schools perform far better than the public schools. So the high significant level shown in the Chi² is not surprising. A study by Godwyll, Addai, and Ayugani (1996) asserted that the use of English language as a medium of instruction from the onset by the private schools is a major contributory factor to their higher performance over their counterparts in the public schools where the medium of instruction from grades one to three or lower primary is the prevailing local language of the area where the school is situated. Furthermore, results from nationwide Criterion-Referenced Tests (CRT) from 1994 to 1997 support the better performance of private schools. For example in 1997, 68.7% and 40.4% of students in the private schools sample scored at the mastery levels and beyond in the literacy and innumeracy tests respectively. The public school sample, however, only scored 6.2% in

literacy and 2.7% in numeracy. A Ministry of Education report laments that the difference is extremely large and unacceptable (Ministry of Education/USAID, 2000). From the analysis of the Chi² test, Ghanaian students possessing higher English language ability, having pre-school experience, attending an urban school, and studying in a private school have higher chances of school success.

Variance Among Students

The researcher found some interesting case studies from single classrooms that typify variance among children in the same class. These case studies have been cited not because they are the only isolated cases, but they typify the trend of the findings. Generally, the abilities of the children differ widely in the various skills.

Jonathan Mensah had a firm grasp over the concept about print and pre-reading skills. He could tell the front of the book from the back, identify that reading is from print and not pictures, knows that reading in English is from left to right and that it is continuous from top of the page to the bottom, knows that the left page is read before the right one, knows that upper and lower cases are not to be mixed together in a sentence, knows that individual words are to be spaced out or separated in a sentence, and could finger read and even read without pointing to the words. John, on the other hand, could not even tell the front of the book from the back let alone grapple with the other tasks. What is the moral justification for teaching these two children how to read using the same approach?

Ama Frimpomaa demonstrated a good concept of time; could tell how she spends the day indicating the time element, tell the time, and indicate when school begins and closes, give the date of the day, names of the days of the week, tell the number of days in a week, indicate which day begins the school week, and the days she does not attend school, tell the current month and name all the months of the year. On the other hand, Albert Kweku Sam demonstrated no orientation with regards to time. He appeared lost and just gave out some random times that had no bearing on the questions. For example, when asked to give the time he comes to school, he indicated 4.00 p.m. but he is in a single-shift school which begins at 7.45 a.m. When asked which day began the school week, he indicated Wednesday, which, coincidentally, was the only day out of the week he could mention; and he gave the same day as the date of the day, which happened to be Friday October 22, 1999. He demonstrated no knowledge of the other skills.

Charles Agyekum sorted letters of the alphabet from numerals, punctuation marks, geometric figures and other symbols, arranged them sequentially, wrote numerals from 1 to 30, and wrote out the letters from A to Z. Kofi Gyimah, in the same class, could only pick two numerals (3 and 5) from the first activity and could write numerals 1 and 3 only when asked to write any numerals he knew. Regarding the letters of the alphabet, he could only pick out A and D and could write ‘a, c, k & G. The rest of the activities *Kofi* could not do.

If the children in the same class differ widely in their abilities, then there is no justification for teaching the children with the class method. This method assumes a standard for the class, and all children are taught with one approach based on an assumed uniformed standard. The chances are that these individuals who fall below the assumed level of performance will begin their school years with a lot of difficulties.

Conclusion

Interestingly, the demographic distribution of poverty in the country follows a similar pattern with the deficiency of educational sector. In the first place, the central region, from which 95.6% of the sample was selected, is one out of the three regions with an increased index of poverty in the 1990s. Food farmers, the majority of whom live in the rural areas, experience a high incidence of poverty and a lack of education. It has been argued that poverty in Ghana is not only a rural phenomenon but also a largely agricultural one. Although two-thirds of the population, inhabitants of the rural areas constitutes four-fifths of this living in total poverty, particularly food crop farmers**,** about 2/5 of the population also constitute a high 3/5 of total poverty (Dittoh & Ankomah, 1997; Dittoh, Milla & Alebikiya, 1998; Republic of Ghana, 1998; Republic of Ghana, 1999).

Ghana basically has an agrarian economy, which also engages the majority of the country's workforce; but this majority is denied its fair share of the national wealth. If education and the school system, which are supposed to fuel the development of human resources, chart the same pattern of the poverty dynamics, then a breakthrough in the cycle of poverty is far from being realized. Education will then become a tool for the production and reproduction of an elite minority, and the realization of the right of every child to quality education will remain a far-fetched dream. The opportunity to harness diverse talents to grapple with the myriad of leadership changes in our society will also suffer a setback.

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